Algoa Water Supply System
Reconciliation Strategy

PROGRESS REPORT NR 2

1. Purpose of this report

This report provides information on the activities relating to the Algoa Reconciliation Strategy undertaken during the past six months. It provides pertinent background, progress made to ensure a sustainable long-term water supply to the Nelson Mandela Bay Municipality (NMBM), key issues to be addressedand recommendations on the way forward.

2. Background

The Algoa Reconciliation Strategy was completed in 2011 by the Department of Water Affairs in cooperation Nelson Mandela Bay Municipality and other stakeholders in order to secure a sustainable future water supply for the Metro and the other towns served by the Algoa Water Supply System.Implementation of the Strategywill ensure that interventions to augment the water supply will be studied and implemented in time to prevent unacceptable risks of water restrictions.

The purpose of the Strategy is to:

- Annually determine the system water balance;
- Annually update possible future water balance scenarios for a 25-year planning horizon;
- Track progress of the planning and implementation of interventions and update relevant information;
- Monitor other information relevant to the Strategy and activities that may impact on the Strategy.

3. Progress

a. Management of the Strategy

The Strategy Steering Committee (SCC)monitors the implementation of agreed strategies/actions, updates the strategy as it becomes necessary, and informs all stakeholders and the public of progress with the implementation of the Strategy and the situation in the system. They are supported in this by the Administrative and Technical Support Group.These committees were constituted in 2011.The Strategy Steering Committeemeets twice a year and the Administrative and Technical Support Group meets two weeks before and after each SSC meeting.

b. Communication

The Reconciliation Strategy Study aims to facilitate input from stakeholders and the public.Amedia release is released after each steering committee meeting. The fourth media releasefollowing the fourth SSC meeting will be released in April 2013. A Strategy Status Report is compiled, disseminated and presented annually. The second Status Report was presented in September 2012. A web page is also available on the DWA web site with all information and reports relevant to the study.

c. Improving the confidence of water availability: proposed water availability assessment study

As surface water resources of the Kromme and Kouga catchment areas could be under stress, the need for verification and validation studies for these areas have been identified. A professional service provider has been appointedto undertake the verification and validation of water use of a part of the Kouga River catchment. The information that will be gathered bythis study will be used as input to the future Water Availability Assessment Study for the Kromme andKouga catchments. Thisstudyis expected to start in 2014 after the verification and validation study has been completed.The current verification and validationstudy unfortunately only covers four quaternarycatchments of the upper Kouga River catchment.The drafting of a submission to the DBAC to request approval to extend the contract and scope to include the rest of theKouga River catchment (i.e. quatenariesL82 E-H) for the Professional Service Provider that has just been appointed

is in process. As this study is a ministerial priority, funds need be made available and further appointments should be made for the Kromme catchment area.

d. Coega IDZ Water Requirements

There is uncertainty about the expected uptake of industrial standard water resulting from future investment in the Coega Industrial Development Zone (IDZ), such investment being dependent on the availability of water and power for investors. In terms of the EIA issued for large industries at Coega, no potable water may be used, and if no industrial water is available, it poses serious challenges to attracting development to the Coega IDZ.

In terms of the future water requirements projections done under this Strategy Support Study and the Water Master Plan Review document, surplus potable water will be available from theNooitgedagt Low-Level Scheme(NLLS) once completed. This potable water will be cost-effectively used as an interim industrial water supply to the Coega IDZ (period 2015 to 2017). This interim use requires an amendment to present EIA RoD conditions of water users. A meeting was held with the Provincial Department of Environmental Affairs and Tourism (DEDEAT) who were amenable to such a request. It is however not Coega'sRoDthat should be amended, but the conditionpertaining to the re-use of water for process water of the investors'RoDs.After receiving a motivation from DWA as per DEDEAT's recommendation,Coega informed Kalagadi that they should apply for their RoD to be amended, as well as request an extension of the validity of their RoD. It is at this stage unclear whether Kalagadi Manganese has applied for the said amendment.

e. WC/WDM

Water Conservation /Water Demand Management interventions are on-going and good progress has been made to achieve the goal of reducing losses by 37,5 Ml per day over a five year period as the target set by the Reconciliation Study. The water audit comparison with theInternational Water Association (IWA) standards between 2010/11 and 2011/12 showed a reduction in real losses of 10,1 Ml/dayor 3,69 millionm^3/a (saving of R24 334 000) while a similar comparison between 2009/10 and 2010/11 showed a reduction in real losses of 12,5 Ml/day or4,56millionm^3/a (saving of R26 640 000.) This means that the losses over 2 years amounted to 22.6 Ml per day (or 8.25 million m^3/a),representing 61% of the target.

Replacement of old meters is on-going and a record total of 20 000 meters replaced will be achieved before June this year. During the previous financial year a total of 18 000 meters were replaced.Further WC/WDM initiatives include pressure management, an awareness campaign, zone metering and the remote sensing of zone meters data (pilot study).

It is estimated that savings of 10-15 Ml per day could be realised by repairing water leaks at the schools in the Metro. The Metro received R2.5 million from the Department of Education (DoE) to start with repairs to schools in the area. The 30 worst schools out of a total of 384 schools were identified for leak repairs and 17 of these were repaired with the funding received.The Department of Water Affairs has recently matched the amount provided by the DoE to repair leaks. This will be used for leak repairs at more schools. TheMetro received US$60 000 from the USA city of Jacksonville and the leaks at two schools were repaired with this funding. Additional funding is urgently needed for further repairs ofleaks at schools in order to show a significant reduction in water losses.

f. Implementation of the Nooitgedagt Low-level Scheme

Nelson Mandela Bay Municipality is constructing the Nooitgedagt Low-Level Scheme (NLLS) as an extension to the existing High Level Scheme that will treat Orange River water, delivered through the Orange-Fish-Sundays River system, to drinking water standard for supply into the NMBM water supply system. Due to a shortage of funding, the first phase of the NLLS was started with emergency drought relief funding of R450 million from National Treasury. Construction of this phase (rising pipeline from Nooitgedagt WTW to Olifantskop reservoir site; 10 Ml reservoir at Olifantskop site; gravity pipeline from Olifantskop site to Coega IDZ boundary and to Motherwell reservoir) will be completed by June 2013.

In order to complete the scheme (extensions to Nooitgedagt WTW; low lift pump station and 45 Ml reservoir), an additional ±R300 million is required. NMBM has approached National Treasury on several occasions between 2011 and 2012 to allocate the additional funds, without success.

The Metro will now complete the outstanding works on the project in a phased approach in line with the capacity of its Capital Budget. By provision of R 30 million in 2013/14 and R 40 million in 2014/15 will be used to commission the currently installed pipelines. The capacity of the scheme will be increased from 85Ml/day (present) to some 140 Ml/day by July 2016. New developments in the Coega Industrial Zone can be supplied from the infrastructure currently being constructed, but this will increase the requirements on the remainder of the Metro system (without additional supply being made available) which will increase the present over-utilisation (requirement > yield) of sources. The water supply to the Metro will therefore be under increased risk until July 2016.

To increase the capacity of the total scheme to 160 megalitre per day (210 megalitre per day peak) will require a further R170 million to complete extensions to the water treatment works at Nooitgedagt and the 45 megalitre reservoir.

Water supply from Olifantskop Reservoir to the Coega Industrial Development Zone may be required by the end of 2013. In order to meet this requirement, a cross connection between the high-level and low-level pipelines is currently being constructed at the Nooitgedagt Water Treatment Works.

It must be noted that when operating rules for the Algoa Water Supply System for the 2012/13 water year was evaluated, it was assumed that additional Orange River water would be available to supply the Metro in 2013 via the Nooitgedagt Low Level Scheme. Becausethe new scheme is however not complete, the Metro has used more water from the Kougasystem as anticipated. 84% of the allocation for the year July 2012 – June 2013 has been used from July 2012 - March 2013. This means that only 16% of the allocation is left to be used in the remaining3 months of the year. As the average daily use is currently high, this could mean that water restrictions will be implemented in the near future.

g. Other interventions

Groundwater: The Metro groundwater investigationis nearing completion. The final borehole siting along the Coega Kop area and the Uitenhage areas is complete.Two drilling tender processes failed as the tenderers were unfortunately deemed non-responsive on both occasions. Other avenues to appoint drillers are currently being explored.It is planned that drilling will start in the Coega Kop area.

Coega Sands Investigation: Natural dune sands south and north of Ngqura Harbour were assessed to see if they may be suitable for filtering surplus wastewater emanating from the Fishwater Flats Wastewater Treatment Works. The sands south of the harbour are too thin and unsuitable. Three areas north of the harbour are being further investigated to establish their thicknesses. If suitable, waste water could be fed into the sandsat the top of the slope, and withdrawn several hundred meters down-slope after natural filtration.

Water re-use:Afeasibility study was done by the Metro to determine the feasibility of the large-scale use of treated water from the Fishwater Flats Waste Water Treatment Plant to supply industries in Port Elizabeth and the Coega IDZ with industrial standard water. The environmental impact assessment for the Scheme has been approved by DEDEAT.The upgrading of the Fish Water Flats WWTW has initially been delayed due to Metro's funding constraints, but the situation has changed as some fundshas been made available for the project. The first phase of supply is based on the understanding that Metro will treat waste water to category 4 industrial process water at Fish Water Flats WWTW.The second phase of the scheme to Olifantskop reservoir zone for a capacity of 60 Ml/d will be constructed at a future date and is excluded at this stage. R18 millionwas made available during 2012/2013 for the detailed design and documentation which is in an advanced stage. An additional R 42 million has been made available for the 2013/2014 financial year and construction on the first 15 Ml reservoir and gravity main into the Coega IDZ is planned for June 2013, with a construction period of 10 months.

Upgrade of Fishwater Flats WWTW – Phase 1: This upgrade involves a new inlet works (170 Ml/day), upgrading of dewatering facilities, upgrade of the existing biological reactors with fine bubble diffused aeration (FBDA), addition of 45 Ml/d membrane biological reactors (MBR) to increase capacity, bulk electrical upgrade and general upgrade and refurbishment of the entire plant. Programming for overall upgrade of the plant is currently scheduled to be completed by 2016/17 but this is dependent on the availability of funding.

Desalination of seawater: The Metro has initiated a reconnaissance-level investigation into a larger 60 Ml/d desalination plant to be potentially located on the coast to the west of the Metro. The siting evaluation has progressed to the point where potential sites have been identified. Site visits to the potential areas have been undertaken. A desktop study of the available desalination technologies has been completed. Discussions are underway with the Nelson Mandela Metropolitan University and the CSIR for the management of a water quality monitoring programto establish screening requirements.The planned completion of the feasibility investigation and concept design is June 2015.

Evaluation of the Raising of Kouga Dam: In light of the updated yield values of the Kouga River that became available from the Algoa Water Resources Bridging Study, it was evident that the feasibility of the raising of Kouga Dam needed revisiting. An improved desktop evaluationwas done to revisit the potential yield options associated with the raising ofthe Kouga Dam. Costs are being updated and Reserve-related aspects to be addressed and potential significant environmental concernsare beingidentified.

4. Recommendations

The most significant challenges being experienced that requires support is the following:

a. Problems with funding ofNelson Mandela Bay Municipality projects: Funding of R170 million for completion of the Nooitgedagt Low Level Scheme and R600 million for the Fishwater Flats WWTW Re-use Scheme is urgently sought, to avoid an imminent shortfall in supply to the Metro (potable supply) and the Coega IDZ (industrial quality water).
b. WC/WDM at NMBM schools: Department of Education should provide further funding towards repairs at schools and DWA should match funding provided by the DoE, to prevent massive water wastage at schools.
c. V&V of water use in the Kouga/Kromme catchments: Additional funding should urgently be allocated to complete the V&V for the Kromme Catchment.